**PROPER USE OF THE MICROSCOPE**

**Grade 4**

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| 1. When moving your microscope, always carry it with both hands (Figure 1). Grasp the arm with one hand and place the other hand under the base for support.  2. Turn the revolving nosepiece so that the lowest power objective lens is "clicked" into position.  3. Place the microscope slide on the stage and fasten it with the stage clips.  You can push down on the back end of the stage clip to open it.  4. Using the coarse adjustment, lower the objective lens down as far as it will go *without touching the slide!* Note: Look at the slide and lens from the side when doing this (see Figure 2).  5. Look through the eyepiece and adjust the illuminator (or mirror) and diaphragm (Figure 3) for the greatest amount of light.   |  |  |  | | --- | --- | --- | |  |  |  |     6. Slowly turn the coarse adjustment so that the objective lens goes *up* (away from the slide). Continue until the image comes into focus. Use the fine adjustment, if available, for fine focusing.  7. Move the microscope slide around so that the image is in the center of the field of view and readjust the illuminator for the clearest image.  8. You should be able to change to the next objective lenses with only slight focusing adjustment. Use the fine adjustment, if available. If you cannot focus on your specimen, repeat steps 4 through 7 with the higher power objective lens in place. DO NOT ALLOW THE LENS TO TOUCH THE SLIDE!  9. The proper way to use a monocular microscope is to look through the eyepiece with one eye and keep the other eye open (this helps avoid eye strain). If you have to close one eye when looking into the microscope, it's ok.  Remember, everything is upside down and backwards. When you move the slide to the right, the image goes to the left!  10. Do not touch the glass part of the lenses with your fingers. Use only special lens paper to clean the lenses.  (read the page on keeping your microscope clean)  11. When finished, raise the tube, click the low power lens into position and remove the slide.  **Remember, microscopes are expensive scientific instruments. Handle them properly and carefully and they will last for many years** |

Activity:

Place the slide of the "letter e" on the stage so that the letter is over the hole and is right side up. Use the scanning objective to view the letter and use the coarse knob to focus. Repeat on the low power objective. Finally, switch to high power. Remember at this point, you should only use the FINE adjustment knob.

Draw the "e" as it appears at each magnification. Drawings should be drawn to scale and you should note the orientation of the e in the viewing field (is it upside down or right side up?)

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| SCANNING | LOW | HIGH |

Have your partner push the slide to the left while you view it through the lens. Which direction does the **E** appear to move?

Microscopes – Sandpaper

Grade 4

Draw each type of sandpaper as it looks like using your eyes

|  |
| --- |
|  |
| Coarse Sandpaper | Medium Sandpaper | Fine Sandpaper |

Now draw it as it looks under a microscope

|  |  |  |
| --- | --- | --- |
| Coarse Sandpaper | Medium Sandpaper | Fine Sandpaper |